

On the Reproduction of Buds. By Thomas Andrew Knight, Esq.
F.R.S. In a Letter to the Right Hon. Sir Joseph Banks, K.B.
P.R.S. Read May 23, 1805. [*Phil. Trans.* 1805, p. 257.]

Mr. Knight begins his paper by stating, that every tree, in the usual course of its growth, generates the buds that expand in the succeeding spring; but if these buds are destroyed, during the winter or early part of the spring, other buds are in many species generated; which buds perform the office of those that previously existed, except that they never afford blossoms or fruit. This reproduction of buds has not escaped the notice of naturalists; but it does not appear that they have ascertained from which of the various substances of the tree the reproduced buds derived their origin.

After noticing some erroneous opinions respecting the origin of buds, Mr. Knight proceeds to relate some observations and experiments made by him on this subject. If the fruit-stalks of the Sea Kale (*Crambe maritima*) are cut off in the spring, the medullary substance decays, and a cup is formed, the sides of which consist of a woody substance, perfectly similar to the alburnum of trees. From the interior part of this substance, new buds are frequently generated in the ensuing spring: hence it is obvious, that the buds, in this case, do not spring from the bark; but it is not equally evident that they do not spring from some remains of the medulla.

In the autumn of 1802, Mr. Knight discovered that the potatoe possessed a similar power of reproducing its buds; which buds sprung from tubers generated on the surfaces made by the knife in dividing the root. In a former paper he has given some reasons for supposing that the internal substance of the potatoe is alburnous; he now observes, that there is in the young tuber a transparent line through the centre, which is probably its medulla; and that the reproduced buds did not spring from the central part, nor from the surface in contact with the bark, but from what he has supposed to be the alburnum of the root.

The author now gives an account of the experiments made, in the autumn of 1802, on young apple, pear, and plum trees, raised by him from seed, and, at that time, about two inches above the ground. These plants, after removing some of the soil, were cut off, about an inch below where the seed-leaves formerly grew; so that a portion of the root, about an inch long, and without any bud upon it, remained exposed. In the beginning of April, many small elevated points were seen on the bark; these appeared to proceed from the alburnum, and, as the spring advanced, perforated the bark, and produced shoots.

As it might be supposed that in the preceding experiments the buds may have originated from the medulla, Mr. Knight thought it right to make some similar experiments on old trees; and found the buds were reproduced by such trees, exactly in the same manner as by the annual roots.

Mr. Knight, in a former paper, has remarked, that the central

vessels appear to derive their origin from the alburnous tubes; he now thinks it not improbable that the lateral, as well as the terminal orifices of the alburnous tubes, may possess the power of generating central vessels, and that these vessels give existence to the reproduced buds and leaves.

Mr. Knight attempted to discover in seeds a similar power to regenerate their buds; but no experiments he could make were decisive, as he was never able to satisfy himself that all the buds could be eradicated without the base of the plumula being destroyed.

The power of reproducing buds here treated of, is not possessed, Mr. Knight says, by annual or biennial plants; but he relates that a turnip, from which the greater part of its fruit-stalks had been cut off, and of which all the buds had been destroyed, remained some weeks in an apparently dormant state; the first seed in each pod then germinated, and, bursting the seed-vessel, seemed to perform the office of a bud and leaves to the parent plant during the short remaining term of its existence.

Mr. Knight takes this opportunity to correct an inference drawn by him, in a former paper, from an experiment in which, after inverting a shoot of a vine and removing a portion of its bark, more new wood was generated on the lower lip of the wound, now become uppermost, than on the opposite lip. He has there inferred, that this effect was produced by sap which had descended from the leaves above. But as the branch was employed as a layer, the matter which would have accumulated on the opposite lip of the wound had been expended in the formation of roots; a circumstance which, at that time, escaped Mr. Knight's attention.

Some Account of two Mummies of the Egyptian Ibis, one of which was in a remarkably perfect State. By John Pearson, Esq. F.R.S.
Read June 13, 1805. [*Phil. Trans.* 1805, p. 264.]

After some general observations on the art of embalming, as it was practised by the ancient Egyptians, and on the various kinds of animals embalmed by them, Mr. Pearson proceeds to give a particular description of the very perfect mummy of an Ibis, which forms the chief subject of the present paper.

This mummy was taken out of the catacombs at Thebes, by the late Major Hayes, in the year 1802 or 1803. It was enveloped in cloth, and contained in an earthen jar, similar to those which are found at Saccara. Upon unrolling the bandage with which the mummy was covered, it was found to consist of strips of cloth, about three inches broad, which were strong and firm. The first circumvolutions of this cloth separated easily; but as the work proceeded, they were found to adhere more firmly, and at last were so closely united, that it was necessary to divide them by means of a strong knife. Each layer of cloth seemed to have been imbued with some bituminous substance in a liquid state; and the bandages were further secured by means of thread, in such a manner that the whole mass